

REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated May 1, 2006, is respectfully requested in view of this amendment. By this amendment, claims 1-8 have been amended. Claims 1-9 are pending in this application.

The amendments to the claims sets forth the transforming of color difference values of all pixels in the adjacent line with reference to the average to change the first counter value and the second counter value. Support is found in the specification, including at page 12, line 24 - page 13, line 18. It is respectfully submitted that the above amendments introduce no new matter within the meaning of 35 U.S.C. §132.

Therefore, the claims now specifically define the use of the "counter value" as set forth in the specification. The specification describes the "counter value" in detail, in what might be called a complement value; however Applicants rely on the description in the specification in this respect.

Rejections Under 35 U.S.C. §103(a)

In the outstanding Office Action, the Examiner again rejected claims 1 - 8 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,825,892 to Braudaway et al. (hereinafter *Braudaway*) and further in view of U.S. Patent No. 6,137,892 to Powell et al. (hereinafter *Powell*); and rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over *Braudaway* and *Powell* as applied to claim 1 and further in view of U.S. Patent No. 6,580,804 to Abe (hereinafter *Abe*).

Response

As recited in claim 1 of the present invention, an average of intensity values or color difference values of all pixels in the specified line in the received image signals is compared with an intensity value or a color difference value for all pixels in the adjacent line. The comparison is described in the claims as using, "a first counter value and a second counter value, said first counter value indicating a number of pixels each of which has an intensity value or a color difference value larger than the average, said second counter value indicating a number of pixels

each of which has an intensity value or a color difference value smaller than the average" (Claim 1; the remaining independent claims similar.)

This is described in the specification, in which the average of intensity values or color difference values of all pixels in the specified line is described by way of example as an even line in the embodiment and the intensity value or a color difference value of each pixel in a line is described for an odd line in the embodiment.

The prior art of record fails to show or suggest performing a comparison, "with reference to the average to change the first counter value and the second counter value". (See claim 1; the remaining independent claims similar.)

This is significant in part because the intensity value or the color difference value of each pixel in the adjacent line is then transformed with reference to the average of the intensity values or color difference values of all pixels in the specified line. This change in the first counter value and the second counter value is such that a large and small relation between the first counter value and the second counter value is created. This is done by the comparison with the average and becomes a relation according to a bit value "1" or "0" of the encryption data from an encryption data generating means. The received image signals are then output as watermarked image signals.

In short, the intensity value or the color difference value of each pixel in the adjacent line as a watermark data is varied depending upon the average of the intensity values or the color difference values of all pixels in the specified line.

By way of a non-limiting example, assume that the number of pixels of each line is 7; the average of intensity values or color difference values of 7 pixels in the specified line is 5.0; and the intensity values or color difference values of seven pixels in a line adjacent to the specified line and in which the digital watermark is to be embedded are respectively 4.0, 4.3, 4.5, 4.8, 5.5, 5.8, and 6.0.

Under the above conditions, the number of pixels each of which has an intensity value or a color difference value larger than the average 5.0 is "3" (5.5, 5.8, 6.0) and accordingly the first counter value is "3". On the other hand, the number of pixels each of which has an intensity value or a color difference value smaller than the average 5.0 is "4" (4.0, 4.3, 4.5, 4.8).

In this non-limiting example it is also assumed that the situation in which the first counter value is larger than the second counter value corresponds to the bit value "1" of encrypted digital watermark, and the situation in which the first counter value is smaller than the second counter value corresponds to the bit value "0" of encrypted digital watermark. In this example, the first counter value is smaller than the second counter value.

Therefore, if the bit value "1" of the encrypted digital watermark is to be embedded in the line adjacent to the specified line in this situation, the intensity values or color difference values (4.0, 4.3, 4.5, 4.8, 5.5, 5.8, 6.0) of 7 pixels in the line has to be transformed with reference to the average (5.0) such that the first counter value becomes larger than the second counter value.

If in this example, a value of 0.3 is added to transform the value of each pixel in the adjacent line, the respective values of seven pixels in the adjacent line becomes 4.3, 4.6, 4.8, 5.1, 5.8, 6.1, and 6.3. Accordingly, the first counter value becomes "4" and the second counter value becomes "3". Therefore, the first counter value becomes larger than the second counter value, which indicates that the bit value "1" of the encrypted digital watermark is embedded in the adjacent line.

As explained in the above example, the present invention uses data of the digital watermark which is embedded in the adjacent line. This data is taken on the basis of the number of pixels in the line with reference to the average of the values of the pixels in the specified line, though changing the values of pixels.

In contrast, in Powell, the average value is merely used to search a point or area into which a digital watermark data is to be embedded, and further the digital watermark data is embedded as a pixel value itself.

In particular, Powell introduces a method using "a difference between averages" as a calculation example. Specifically, as shown in Fig. 3, the method regards a block having 5 x 5 pixels as a unit, calculates a difference between an average of pixel values within a 3 x 3 pixel small neighborhood and an average of pixel values within a 5 x 5 pixel large neighborhood. Powell then selects a block whose difference is large as a block into which a digital watermark data is to be embedded. Powell then transforms intensity values of pixels in

the selected block according to bits constituting the digital watermark information and accordingly realizes the embedding of the information.

Therefore, *Powell* fails to suggest the features of comparing the counter values as set forth in claims 1-8.

Regarding claim 9, *Abe* teaches pixel-based digital watermarks located near edges of an image. The Examiner cites *Abe* in an attempt to cure the deficiencies of *Braudaway* and *Powell* regarding claim 9.

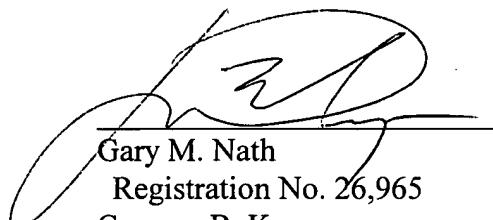
Even assuming *arguendo* that *Abe* teaches placing a digital watermark near or substantially along edges of an image, *Abe* fails to cure the deficiencies of the other two references. Namely, *Abe* fails to teach or suggest that the intensity value or the color difference value of each pixel in the adjacent line as a watermark data is varied depending upon the average of the intensity values or the color difference values of all pixels in the specified line.

In view of the above, Applicants respectfully submit that claims 1-9 define over *Braudaway*, *Powell*, and *Abe* taken either alone or in combination. Further, as the combination of references fail to teach or suggest all the limitations of claims 1-9 of the present invention, it is therefore respectively submitted that the rejections of claims 1-9 under 35 U.S.C. §103(a) should be withdrawn.

CONCLUSION

In light of the foregoing, Applicants submit that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner call the undersigned.

Respectfully submitted,
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